NIH NATIONAL CANCER INSTITUTE

Frederick National Laboratory for Cancer Research

Clinical and Translational Serology Highlights

SERONEWS

February 2022

Serology, Vaccines, and Potential

A SARS-CoV-2 Conversation with Dr. Doug Lowy

Doug Lowy, M.D., principal deputy director of the National Cancer Institute, recently spoke with us about SARS-CoV-2 serology efforts. He shared his thoughts on vaccination, research gaps, and looming questions in the field, pointing to the importance of collaboration and capitalization on scientific opportunities and outreach.

Please note that the opinions and viewpoints expressed in this interview are Dr. Lowy's own and this material should not be interpreted as representing the official viewpoint of the U.S. Department of Health and Human Services, the National Institutes of Health, or the National Cancer Institute.

Our conversation, edited for brevity and clarity, is below.

For those who aren't tuned into the subject, why are serology and standardization of serology efforts important?

Serology is used in several different ways, but usually it's used for determining whether people have mounted an immune response to an infection or a vaccine. Serology is the area where you're looking at antibody responses.

So-called "cell immune responses" are also important, but it's far easier and less expensive to look at antibodies, so people tend to look at antibodies unless there is a compelling reason to look at cellular immune responses. When it comes to SARS-CoV-2, we believe that cellular immune responses are important but, in addition, the antibody responses are also important, and that's what tends to be studied and reported to a greater degree than cell-mediated immune responses. However, I would say that one of SeroNet's great strengths is it has people with expertise in cellular immunology, and they are looking at cellular immune responses, both to the natural infection as well as to the vaccines.

Serology, Vaccines, and Potential story continues on next page.

Serology, Vaccines, and Potential (cont.)

What kind of strengths does NCI bring to this collaboration, and what strengths does it gain from working with these other groups in SeroNet?

One of the strengths is that we do have expertise in viruses. We don't tend to have expertise in acute respiratory viruses because they generally are not involved in causing cancer. Our expertise is more in viruses that cause cancer. One of the reasons we wanted to focus on serology is our expertise in HPV, including antibody responses to regular infection as well as to vaccination. We thought that there would be potentially important parallels between SARS-CoV-2 immune responses and responses to HPV infection and vaccination. It turned out that there really is a fair amount of similarity, so Dr. Ligia Pinto's [HPV serology] lab applying its expertise to SARS-CoV-2 was quite logical.

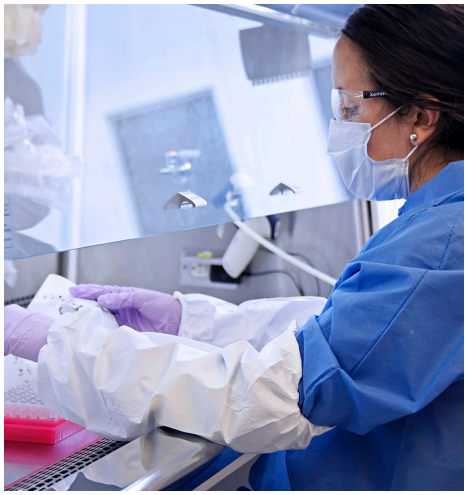
What aspects of their work do you see pushing the frontier or making contributions?

Perhaps the most important contribution that Dr. Pinto's lab has made is helping to validate the accuracy of commercial serology tests that were submitted to the FDA. Based on the results, the FDA gave or did not give Emergency Use Authorization to the different commercial devices.

I really must emphasize this was only possible because of collaboration. It was not all NCI. We found ourselves in an unusual situation where we had expertise but, in general, weren't being asked to do things immediately with the pandemic effort—very different from the NIAID or the CDC or BARDA, where they were being asked to do things almost 24/7. This led HHS to ask us to take on new tasks because other agencies didn't have the bandwidth. Fortunately, we were able to do it.

I really must emphasize this was only possible because of collaboration. It was not all NCI.

Another important area was setting up a dashboard for looking at serology throughout the United States. It's called "SeroHub." Dr. Neal Freedman from DCEG took the lead, but it was with very close collaboration between colleagues in CDC, NIAID, and the Frederick National Laboratory. SeroHub is really the go-to resource for looking at serology in the United States. It captures, over time, the range of antibody levels in different locations, not just at a state-wide level but even at a more granular level in many situations, and there are very wide differences between different states and antibody levels. SeroHub, in its first six months, had well over a million visits to its website. People have found out about its existence, and it's very user-friendly.



The Frederick National Laboratory Protein Expression Laboratory produced the spike protein used in antibody tests for SARS-CoV-2, the virus behind COVID-19.

Dr. Pinto's lab also developed a national standard for measuring antibody responses. Again, this is a collaboration with groups outside NCI. Dr. Pinto's lab is a designated laboratory for the World Health Organization [WHO] for developing the serological standards for the HPV responses. They know very well what's required, so it was quite straightforward for them to set things up and get a large standard. They put aside thousands of aliquots for the standard so that when we get requests, we can provide not just one aliquot but even more than one. Before we sent out the standard, we had multiple laboratories characterize it, so we knew that it was working well.

Our standard was developed before the WHO standard was available and was calibrated to the WHO standard once that became available. That was one of the reasons we wanted to develop it—so people working in the United States, if they wanted a standard, could get access to it. The WHO ran out of their standard a couple of months ago, and we have been providing our standard to many countries outside the United States in addition to places in the United States. It makes it possible to benchmark different assays against other assays, and now the team is developing more standards with more reagents so that you will be able to complete these in an even finer way going forward.

That really speaks to the power of bringing people together to handle these problems.

It's their dedication, collaboration, and expertise. That's really what makes it possible.

Do you see any opportunities for future or upcoming collaborations?

Yes. A relatively new area is studying people who are immunosuppressed and who are not making good responses to the vaccines. We have gotten in the business of helping places to, essentially, give vaccines to people who have been vaccinated but haven't mounted good responses, to see whether there are underlying conditions.

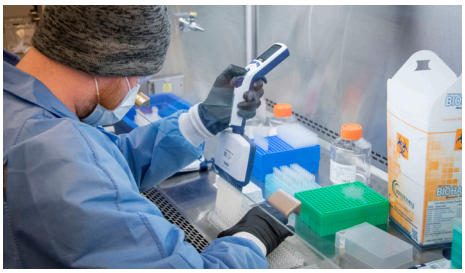
We're helping to support those kinds of studies, as well, through SeroNet, so that's a relatively new activity because the first few months of the vaccine rollout were really to get as many people vaccinated as possible. Fortunately, the vast majority of people who get vaccinated mount reasonably good immune responses, but a certain group of cancer patients is a major group of immunosuppressed people in the U.S. We are working closely with colleagues at NIAID because they deal with other people who are immunosuppressed: people who receive organ transplants and people who have a wide range of autoimmune diseases—multiple sclerosis, inflammatory bowel disease, rheumatoid arthritis, and other conditions—that may be associated with immunosuppression.

We're trying to help. The first goal is to see, "Can we get people who have not mounted a good immune response to mount a good immune response?" Vaccine-induced immune

Serology, Vaccines, and Potential (cont.)

responses are better than the alternative, and the alternative is to isolate yourself or to use the monoclonal antibodies that have been authorized for emergency use.

Another issue is going to be antibody duration in immunosuppressed people. If you would broadly recommend a booster, let's say, after six months, it might be that you would want to do a booster for those individuals after three or four months. Those are the kinds of studies that we are helping to support so



Dr. Ligia Pinto and her team were instrumental in validating the accuracy of commercial serology tests that were submitted to the FDA.

that people who are taking care of immunosuppressed patients have more information about what to do for them, and the people themselves who are immunosuppressed have more options about what to do.

That relates to the elephant in the room, which is the larger conversation about what gaps are left to be filled before we know what protection looks like. It seems like serology is the key to that, but there's still a lot to be done.

Yes. It's really serology working hand-in-hand with screening. I'm not the first person to say that. In the United States, even now, it is not so straightforward to get tests and get a rapid turnaround. President Biden's administration is trying to greatly expand the availability of tests because, really, antibodies give you just part of the information, but you also need to know whether these people with antibodies are getting infected.

I know it's a long road, but what would you say are some of the biggest hurdles left?

My feeling is that although the vaccines are very good, their apparent duration of protection is short. The question is, "Might there be a different platform that could give a longer duration of protection than with the current vaccines?" On the other hand, SARS-CoV-2 mutates quite frequently and throws off variants, and periodically, those variants then go through the population. Would it be advantageous, really, to have a vaccine whose duration of protection is longer in the context of there being these rapid evolutionary changes with the different variants, or is it better to have a more nimble situation, such as with the RNA vaccines? The question, then, is going to be "What will the FDA want in terms of clinical studies before they would allow a new variant to be incorporated into the vaccine?" I'm focused on the vaccine because, to me, our best hope for getting over the pandemic is widespread vaccination of as many people as is feasible—at the same time, to provide opportunities for people who don't mount good responses so that they can participate, at least to some degree, in society.

It's a balancing act, almost.

Yes, absolutely. Within my family, there are different people who are willing to take different risks, and it's not like one person is correct and the other person is wrong. It's just, "What risks are you willing to take?" There's a very wide spectrum of what is reasonable.

Do you think that having more data can help people make those decisions, if we can get more data about the vaccines and antibodies?

More information is going to be key going forward. There's no question about it, but what I think we have seen is that incentivizing people to get vaccinated has led to many people being vaccinated. For example, if I don't get vaccinated, I'm going to lose my job. That's a pretty strong incentive.

It's really serology working hand-in-hand with screening.

But in the private sector, you have a choice. You can either be tested regularly or you can get vaccinated. I think many people don't appreciate that this is a very big difference. There isn't a real mandate to get vaccinated. There's a mandate to know your status.

Editorial update: *Recent court decisions mean that, for now, these mandates are no longer in place. Dr. Lowy's comments preceded these decisions.*

That's a good way to put it: to have that information, and everybody kind of has that duty.

Clearly, there are many people who are opposed to vaccination, but I will tell you that this is a very recent event. Having been involved in the development of the HPV vaccine, I have seen, firsthand, vaccine hesitancy and people opposed to vaccination for one reason or another.

The people in urban areas tend to be vaccinated for HPV at a higher rate compared with people in rural areas, but the discrepancy is small. You also don't see a divide according to race and ethnicity when it comes to HPV vaccination. There's something very different about SARS-CoV-2.

Do you think that stems from the vaccines' newness and the speed at which they were developed? If so, how can science help to assuage some of these concerns?

There have been many efforts to do it, but to me, there are really two different lines of thought here. One is certain people have become quite entrenched in being opposed to vaccination. But then there was the other group of people, particularly African American and Hispanic, who had concerns about the vaccine. That was early on, and I think it was in part because it was so rapid. I don't think there was skepticism about efficacy. I think the issue was mainly about safety. What you have seen is, over time, that hesitancy—my understanding, at least—has gone down. The gap between ethnic groups has narrowed.

There's really a shining example among many American Indian tribes of high uptake. Historically, for very good reasons, these groups have been skeptical of the United States government, but when the vaccine was available, the leaders in a number of American Indian tribes had highly publicized vaccination. I think that the tribes were sufficiently cohesive that the people in the tribes then followed the example of their leaders.

Serology, Vaccines, and Potential (cont.)

This is an achievement that we should be publicizing because American Indians were disproportionately attacked with severe infections with SARS-CoV-2, and they recognized they had a serious problem and saw the vaccine as a positive instrument in trying to deal with it.

It points to the role of community in working through these situations.

Yes, but there is no, say, monolithic Latino community as far as I can tell. This is not my area of expertise, but I don't think other populations are organized at all the same way as the tribal nations are organized.

Maybe some of the responsibility falls to individuals in trying influence their sphere—across all groups?

Sure, and a lot of effort has gone into trying to educate people that the vaccines have side effects but that they are nothing compared to what happens to people who get the actual infection. The data are overwhelming: you are much better protected than if you are not vaccinated. There's always going to be some holdouts, but the percentage of the population that does not want to get vaccinated is really quite high compared to most other vaccines.

It's not the same population that doesn't get HPV vaccination. Actually, HPV vaccination now has higher uptake than SARS-CoV-2 vaccination, but they've had a longer period of time. The HPV vaccine was approved 15 years ago, so the uptake has gone up over a much longer period, in part because it was a less acute, less severe situation than SARS-CoV-2. We've wanted people to do something in six months. That's a bigger challenge.

I don't think there was skepticism about efficacy. I think the issue was mainly about safety.

There seems to be some crossover between SARS-CoV-2 efforts and the past HPV effort. Where do you see some of these areas crossing over, and what would you say are some of the big lessons we've learned from working in the SARS-CoV-2 serology arena so far?

I don't have a big lesson. I have a big fear. I really worry that this resistance to SARS-CoV-2 vaccination might extend to other vaccines. That would be very unfortunate.

Time will tell. Thank you, Dr. Lowy.

Opportunity in the Gap

Two Large Health Care Organizations Gather Data, Work to Identify Clinical Connection for SARS-CoV-2 Antibody Test Results

On any given day, physicians across the U.S. will order a SARS-CoV-2 antibody test for tens of thousands of patients.

Northwell Health, New York state's largest health care provider and one of the four SeroNet Capacity Building Centers, has performed 1.2 million antibody tests, nearly 2,000 samples daily. Many were ordered by physicians within its network. Labcorp, one of the nation's largest clinical laboratory networks, has performed more than 7 million antibody tests since the pandemic began, a sum equating to approximately 11,000 per calendar day.

"This testing means something to our providers," said James Crawford, M.D., Ph.D., Northwell's senior vice president of laboratory services, speaking of the situation in New York.

The nagging question, of course, is "but what?"

SARS-CoV-2 serology tests have provided valuable epidemiological information as the pandemic has progressed; helped in the diagnosis of multisystem inflam-

Opportunity in the Gap (cont.)

matory syndrome in children and adults; and remained critical in the evaluation of candidate, authorized, and approved vaccines. However, further work remains to determine the levels of antibody associated with protection against the virus.

"We can tell people, 'You have this. This is how much antibody you have.' But we are still working to understand what it means in regards to protection against infection or severe disease," said Laura Gillim, Ph.D., technical director of science and technology and division director of infectious disease immunology at Labcorp.

This represents a potential opportunity. At Northwell and Labcorp, the data collected so far may be a staging ground for a new phase of SARS-CoV-2 serology research.

Pairing the Data: A Critical Path Forward

Northwell began antibody testing in April 2020, launching a voluntary serosurvey that involved 46,000 of its more than 70,000 employees to monitor their SARS-CoV-2 exposure. Northwell rapidly built up a capacity to test 10,000 samples daily, if needed, which it has maintained since. Testing opened to patients soon thereafter.

Labcorp rolled out five assays during 2020 and has built a diverse repertoire of serology tests. It stood up one of the largest testing capacities in the nation. Its research laboratories, meanwhile, have developed several of their own antibody tests, including one virus neutralization assay that has been used in numerous vaccine clinical trials.

The result—and the opportunity—for both Northwell and Labcorp has been large quantities of SARS-CoV-2-related serological data.

"We have this great data, we know it came from 'John Smith' in California, but we don't know his clinical history or vaccination history," Gillim said. "We don't have that information, and that's where the partnerships [come in]—to find some way to bring it all together."

"Real-world data … is a way both to inform the medical science of the host response to this pathogen but also, hopefully, through linking it with clinical information, to make medical decisions in a reasonable way," Crawford said.

Put another way, pairing serology data with virological, clinical, and demographic data may give scientists crucial information for determining what serology test results mean, such as what antibody levels represent protection and what immunity looks like. Northwell is collaborating with Kaiser Permanente of Northern California on an effort to connect serology and clinical data, including vaccination history, Crawford said.

"Since the beginning of the pandemic, our priority has been to strategically deploy COVID-19 testing to support our region, especially for patients receiving health care. This has included antibody testing. Northwell's strength is its real-world experience of what's happening," Crawford said.

Labcorp previously partnered with a state health system to build those connections on a smaller scale. The collaboration used a voluntary, cross-sectional serosurvey conducted statewide and included testing patients' SARS-CoV-2 antibody levels and collecting data on SARS-CoV-2 infection, COVID-19 vaccination status, and other underlying health conditions.

The key difference was the partners' real-time data collection and analysis, rather than the retrospective approach that analyses of the existing collection of data would require. However, Labcorp's prior partnership may provide helpful guidance on how to best approach an analyses of various data streams.

"I think we're open to even more," Gillim said.

It remains to be seen how efficiently the abundance of testing data can be combined with clinical data for analysis. Patient privacy and data security will continue to be a key area of focus for those involved in these studies.

But both Gillim and Crawford point out the necessity of making the attempt. As Northwell and Labcorp continue to accrue testing data, these partnerships are key to fully leverage the potential of serology to inform public health recommendations and decisions.

"It's being able to connect our lab data to outcomes. It's partnering with a hospital or national health system," Gillim said. "We're confident this approach will help us find the answers we're seeking."

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The Road to Clinical Relevance

Serology Testing Still Holds Questions, but Medical Uses Make Progress

COVID-19 has pilfered the public's peace of mind. To some, SARS-CoV-2 serology—antibody testing for the COVID-19 virus—has become a tantalizing option for reclaiming some serenity.

Public interest in SARS-CoV-2 serology for personal use has captured wider attention in recent months. An online search for testing information can yield—among other results—multiple ads for antibody tests, loosely framed in terms of helping the average person track their antibody level or feel empowered or determine their need for a booster vaccine.

But that peace of mind is largely illusory. Serology test results for the average person seeking reassurance of their immunity are tenuous at best.

Despite the widespread use of antibody tests, neither the Centers for Disease Control and Prevention (CDC) nor the Food and Drug Administration (FDA) recommends them for predicting immunity. The FDA hasn't authorized or approved any serology tests for this use. Because the threshold antibody level for COVID-19 immunity hasn't been established and is a complex subject, tracking antibody levels on an individual basis for most people isn't especially informative in most cases.

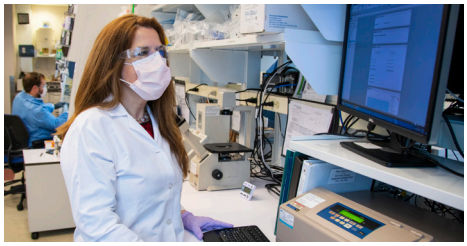
Urgent Need for Standardization

Although SARS-CoV-2 serology does shine in medical and population-level research, such as tracking and analyzing vaccination immune responses, there's still a lot of research to do before a protective antibody threshold can be established and serology tests can be used broadly on an individual scale.

Standardizing testing assays to a Certified Reference Material (a control source material) and expressing antibody threshold data in standardized units would facilitate authorization for broader use, said the FDA via email.

"Standardization among assays and among laboratories will support efforts to better understand antibody kinetics and longevity of humoral immune responses post-illness, surrogates of immune protection, and vaccine immunogenicity and efficacy," the FDA said.

Without standardization, regulators can't efficiently compare data between different antibody tests. If a laboratory reports findings,



Companies worldwide sent their serology tests to Dr. Ligia Pinto's lab, where she and her team evaluated the tests for accuracy before the FDA considered them for Emergency Use Authorization.

its own unique procedures may limit the results' applicability in a larger setting. The National Cancer Institute Serological Sciences Network is leading a national-level standardization effort for that reason.

Authorization will also require large-scale, long-term studies that measure antibody levels before and after vaccination or infection to identify an association between susceptibility to infection and antibody levels below a certain threshold, the FDA said.

The good news is that some studies to address these issues are already underway. "These longitudinal patient follow-up studies are expected to elucidate the relationship between antibodies and protection from reinfection," the FDA said.

But additional hurdles remain. COVID variants may complicate a determination of protective antibody levels. Omicron's infectiousness, even among vaccinated people, is the most vivid example, in view of the large number of vaccinated people who have become infected. Antibodies' protective effects also must be untangled from those of T cells, white blood cells that contribute to SARS-CoV-2 immunity.

Progress So Far

SARS-CoV-2 serology testing is already recommended for public health purposes and has utility for clinical and occupational health, the FDA said. This is where it has been especially useful.

Some physicians are using antibody tests to determine whether immunocompromised people, like transplant patients and some cancer patients, developed antibodies in response to SARS-CoV-2 vaccination. The objective is less about examining these patients' specific antibody levels and more about determining how they compare to levels in people with intact immune systems who mounted a protective antibody response.

While that doesn't reveal a specific protective threshold, it does help physicians determine whether an immunocompromised patient is

The Road to Clinical Relevance (cont.)

likely to experience similar levels of vaccine protection as the general population. On a larger scale, data from immunocompromised groups can offer key insights in broad, population-scale SARS-CoV-2 serology studies.

"Serology tests play a role in the fight against COVID-19 by helping health care professionals identify individuals who may have developed an adaptive immune response to SARS-CoV-2," the FDA said.

The agency added that these test results can also help determine who is eligible to donate convalescent plasma, a blood product that may serve as a possible treatment for those who are seriously ill from COVID-19.

The CDC is using serology testing data for large-scale analyses that track past infection and vaccination rates, among other patterns. The National Cancer Institute, National Institute of Allergy and Infectious Diseases, and CDC have launched the COVID-19 SeroHub, an interactive repository of SARS-CoV-2 seroprevalence studies. Other laboratories have analyzed large cohorts of serology data to track how antibody levels change and decline over time. This type of information helps public health experts monitor pandemic-related health trends and can inform future practices and policies.

Still others have used analyses of serology data to estimate comparisons of vaccine effectiveness and protection levels on a small scale within a single laboratory. Several studies also have found that people with a positive test for antibodies against SARS-CoV-2 were at lower risk for future infection.

Many of these efforts have begun to answer questions involving SARS-CoV-2 serology and guided a path forward, albeit bit by bit, through the pandemic, as researchers build a better and stronger understanding of the immune system response to SARS-CoV-2 and vaccines.

Despite the looming road ahead, there's genuine peace of mind in that.

Publication Announcement

AMERICAN SOCIETY FOR MICROBIOLOGY | Microbiology Spectrum

Frederick National Laboratory, the Food and Drug Administration, the National Cancer Institute, the Centers for Disease Control and Prevention, and the National Institute of Allergy and Infectious Diseases announce the publication of their research article on the results of the U.S. government's joint independent analysis of SARS-CoV-2 serology assays.

The study was published online on *Microbiology Spectrum* on January 12. Data for all serology assays evaluated are available at the FDA website and CDC website.

Past Events

Monthly Meetings

Tues, 11.9.21

A Population-Based Threshold of Protection for COVID-19 Vaccines
Dr. David Goldblatt, Professor of Vaccinology and Immunology, University College London

A Needle-free, Adjuvant-free, Bacteriophage T4 Platform for Rapid Design of Multivalent Vaccines Against SARS-CoV-2 and Pandemic Pathogens by CRISPR Engineering
Dr. Venigalla Rao, Professor of Biology, The Catholic University of America

Tues, 12.14.21

Vaccine Boosted Plasma: The Use Case in Immune Suppressed Patients with Smoldering COVID
Dr. Michael Joyner, Department of Anesthesiology & Perioperative Medicine, Mayo Clinic
Dr. Liise-anne Pirofski, Chief, Division of Infectious Diseases, Albert Einstein College of Medicine and Montefiore Medical Center

Tues, 1.11.22

Centralized Laboratory Network for Measurement of Immune Responses Elicited by SARS-CoV-2 Vaccines
Dr. Arun Kumar, Preclinical Vaccines Development Lead, Coalition for Epidemic Preparedness Innovations (CEPI)

The SARS-CoV-2 WHO International Standard and Reference Panel: Replacement Programme and the Challenge with Variants
Dr. Mark Page, Principal Scientist and Head of Emerging Viruses Group, Division of Virology, National Institute for Biological Standards and Control (NIBSC)

Past Events

Monthly Meetings (cont.)

Tues, 1.11.22

WHO Standards for Evaluation of the Immune Response to COVID-19 Vaccines

Dr. Ivana Knezevic, Scientist, Technical Standards and Specification Unit, and Group Lead, Norms and Standards for Biologicals, WHO/MHP/HPS

Focus Group Meetings

Fri, 10.15.21

The Landscape of SARS-CoV-2 Antibody Testing at Labcorp

Dr. Laura Gillim, Technical Director, Science and Technology, and Discipline Director, Infectious Disease Immunology, Labcorp

COVID-19 Serology Real-World Data: Leveraging U.S. Data to Maximize Clinical Potential

Dr. James Crawford, Professor and Chair, Department of Pathology, and Laboratory Medicine, Donald and Barbara Zucker School of Medicine at Hofstra/Northwell and Senior VP of Laboratory Sciences, Northwell Health

Fri, 10.19.21

Heterologous COVID-19 Booster Vaccines

Dr. John Beigel, Associate Director for Clinical Research, Division of Microbiology and Infectious Diseases, NIAID

Immune Responses to SARS-CoV-2 Vaccination in Myeloma – An Update

Dr. Samir Parekh, Hematology-Oncology and Oncological Sciences, Mount Sinai

Fri, 12.17.21

Update on USG Supported COVID Vaccine Trials

Dr. Mary Marovich, Director, Vaccine Research Program, Division of AIDS, NIAID

An Update on the Serologic Responses to COVID Vaccines in Children

Dr. Kathryn Edwards, Sarah H. Sell and Cornelius Vanderbilt Professor of Pediatrics, Vanderbilt University Medical Center

Fri, 1.21.22

Resistance of SARS-CoV-2 Omicron Variant to Neutralization by Vaccine-Elicited and Therapeutic Monoclonal Antibodies

Dr. Nathaniel Landau, Professor, Department of Microbiology, NYU Grossman School of Medicine

Translating Greek Letters into Clinical Efficacy: EVUSHELD Activity against Variants of Concern

Dr. Katie Streicher, Head of Translational Medicine in Vaccines & Immune Therapies, AstraZeneca

Round Table

Mon, 10.25.21 **Topic:** ***Clinically Relevant Biomarkers of Disease Severity: What do we know?***

Multiple Independent Risk Factors for Post-Acute Sequelae from COVID-19

Dr. Jim Heath, President and Professor, Institute for Systems Biology

Immunophenotyping Assessment in a COVID-19 Cohort

Dr. Patrice Becker, Section Chief, Asthma and Airway Biology, NIAID

Using AI to Help Predict the Likelihood of Progression to Severe Disease in COVID-19 Patients

Mr. Jamie Gramz, Head of Digital Applications, Siemens

Dr. Raj Gopalan, Chief Medical Informatics Officer, Siemens

Upcoming Events

Monthly Meeting: Tuesday, February 8, 2022

Focus Group Meeting: Friday, February 18, 2022

Round Table: Monday, February 28, 2022

Leadership Corner

2022 is off to an exciting start with expanding collaborations and a series of meetings to foster discussions and facilitate the translation of understanding of immune responses to SARS-CoV-2 infection and vaccination into public health changes.

The Clinical and Translational Serology Taskforce will continue to work together to encourage broad implementation of serology standardization and leveraging of serology's clinical applications by bringing together stakeholders from academia, industry, and government to present latest findings and technology advancements and to discuss key topics of interest.

As we reflect on last year and plan for the next, we realize that prompt sharing of information, data, and resources is more critical than ever, given the unprecedented challenges that COVID-19 and the emergence of new variants have posed to the scientific and medical community. On this front, we are planning to conduct new resource and study surveys that will promote collaborations and exchange of information to bring forward the best responses to this pandemic.

We look forward to continued engagement and discussion as we move through this third year of pandemic.

We welcome your suggestions, comments, and requests, and we're looking forward to working with and hearing from all of you.

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